CLAIMS

AS OUR INVENTION WE CLAIM:

Claim 1: A method of placing, within a wellbore containing a fluid, a bottom-hole tool assembly suspended by a support string, said method comprising the bottom-hole tool fabrication step of coordinating the distributed weight of said assembly with the distributed volume of said assembly and the specific gravity of said wellbore fluid to substantially reduce a bottom hole tool support load on said support string.

Claim 2. A method as described by claim 1 wherein said bottom-hole assembly is a perforating gun.

Claim 3. A method as described by claim 1 wherein said wellbore fluid is predominantly a liquid.

Claim 4. A method of placing a bottom-hole tool assembly within a wellbore containing a fluid wherein at least a portion of the wellbore directional course is advanced along a slope that is less than an angle of repose for said tool assembly against a wall surface of said wellbore, said method comprising the step of coordinating the distributed weight of said assembly with the distributed volume of said assembly and the specific gravity of said fluid to predetermine a bearing force of said assembly against said wellbore wall surface.

Claim 5. A method as described by claim 4 wherein the bearing force of said tool assembly is biased to buoy said assembly substantially against uppermost elements of said wall surface.

Claim 6. A method as described by claim 4 wherein the buoyancy of said tool assembly is biased to sink said assembly against substantially lowermost elements of said wall surface.

Claim 7 A method as described by claim 4 wherein said bottom-hole tool assembly is a perforating gun.

Claim 8. A method as described by claim 5 wherein said bottom-hole tool assembly is a perforating gun.

Claim 9. A method as described by claim 6 wherein said bottom-hole tool assembly is a perforating gun.

Claim 10. A light weight well perforation apparatus comprising a shaped charge loading tube enclosed within a composite material outer gun tube and a plurality of shaped explosive charges operatively secured within said loading tube for perforating a subterranean well having an inclination of about an angle of repose or less.

Claim 11. A light weight well perforation apparatus as described by claim 10 wherein said outer gun tube material is a fiber and polymer matrix.

Claim 12. A light weight well perforation apparatus as described by claim 11 wherein the fiber in said matrix is glass.

Claim 13. A light weight well perforation apparatus as described by claim 11 wherein the fiber in said matrix is carbon.

Claim 14. A light weight well perforation apparatus as described by claim 11 wherein the fiber in said matrix is polyaramid.

Claim 15. A light weight well perforation apparatus as described by claim 11 wherein the polymer in said matrix is an epoxy.

Claim 16. A light weight well perforation apparatus as described by claim 11 wherein the polymer in said matrix is an ester.

Claim 17. A light weight well perforation apparatus as described by claim 10 wherein said loading tube is fabricated with light weight material.

Claim 18. A light weight well perforation apparatus as described by claim 17 wherein the fabrication material of said loading tube is a plastic composite.

Claim 19. A light weight well perforation apparatus as described by claim 17 wherein the fabrication material of said loading tube is a foamed polymer.

Claim 20. A light weight well perforation apparatus as described by claim 17 wherein the fabrication material of said loading tube is a composite material.

Claim 21. A light weight well perforation apparatus as described by claim 17 wherein the fabrication material of said loading tube is a foamed glass.

Claim 22. A perforating gun loading tube for placing and confining a plurality of shaped explosive charges within an outer gun tube, the composition of said loading tube comprising a composite material.

Claim 23. A perforating gun loading tube as described by claim 22 wherein said composite material is a fiber and polymer matrix.

Claim 24. A perforating gun loading tube as described by claim 23 wherein said fiber in said matrix is glass.

Claim 25. A perforating gun loading tube as described by claim 23 wherein said fiber in said matrix is carbon.

Claim 26. A perforating gun loading tube as described by claim 23 wherein said polymer in said matrix is an epoxy.

Claim 27. A perforating gun loading tube as described by claim 23 wherein said polymer in said matrix is an ester.

Claim 28. A perforating gun loading tube as described by claim 22 wherein said composite material is a foamed polymer.

Claim 29. A perforating gun loading tube as described by claim 22 wherein said composite material is a foamed glass.

Claim 30 A light weight shaped charge element formed without base casement for operative seating within a loading tube socket.

Claim 31. A light weight shaped charge element formed with a light weight base casement for operative seating within a loading tube socket.

Claim 32. A light weight shaped charge element as described by claim 31 wherein said base casement is paper.

Claim 33. A light weight shaped charge element as described by claim 31 wherein said base casement is aluminum foil.

Claim 34. A light weight shaped charge element as described by claim 31 wherein said base casement is a composite material.

Claim 35. A light weight well perforation apparatus comprising a light weight shaped charge loading tube enclosed within a composite material outer gun tube and a plurality of light weight shaped explosive charges operatively secured

within said loading tube for perforating a subterranean well bore having an inclination of about an angle of repose or less.